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MEDICAL READINESS TRAINING, RETENTION, AND COST EFFICIENCY: THE FUTURE OF DOD'S GRADUATE MEDICAL EDUCATION PROGRAM

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ABSTRACT

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In the post-Cold War era, personnel downsizing and constrained budgets focused attention on DOD's need to determine the most cost effective size and mix of its medical force. A key component of the restructuring is the Graduate Medical Education (GME) process that supplies trained and ready physicians to DOD's Armed Forces. This paper identifies medical readiness training needs and analyzes costs and retention as factors of GME strategy. It shows how these factors are driving change in GME strategy. It then addresses the second and third order effects of readiness, cost issues, and retention. In an Armed Force of declining resources, the DOD cannot afford strategies that do not support military medical readiness at the least cost.

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A perennial debate to which the MHSS is again joined concerns the appropriate size of the medical force. Just how many physicians should be on active duty? What is the correct size of the MHSS itself? How much more capability can be added, or subtracted, based on cost-benefit analyses?¹

In closing, Mr. Chairman, I want to stress to you the fact that our Armed Forces are participating in far more operations deployments than just ten years ago...It means we have a tremendous need for rapidly deployable, highly qualified medical personnel to ensure the health and safety of these men and women.²

These observations of the Assistant Secretary of Defense for Health Affairs (ASD(HA)) before the Second Session, 104th Congress, highlight medical readiness and cost as two important Department of Defense (DOD) issues. The Assistant Secretary's questions are especially relevant to DOD's Graduate Medical Education (GME) programs.

GME is a complex training process that trains physicians to become independent practitioners in a particular specialty. GME physicians in training become the trained doctors of the future and determine the future characteristics of the physician force and to a large extent the capabilities of DOD's military health service system (MHSS). Depending on where physicians attend GME, they impact differently on military medical readiness, costs, and ultimately on the MHSS's capability to cost effectively support the force.

A persistent problem for GME is inadequate guidance from DOD and the Services on military medical readiness training appropriate to GME programs.

As a result, military readiness curricula is either overlooked or varies greatly

among GME training programs. Thus, military physicians may lack the military medical readiness skills that today's environment demands.

The lack of comprehensive cost methodologies hampers DOD from determining the cost of GME programs. Thus, DOD may not be acquiring, training, and retaining on a cost effective basis the physicians necessary to meet the readiness needs of the Armed Forces.

The role of retention in increased readiness and decreased cost is important, but not well researched. Research indicates that when physicians receive GME training in DOD facilities, they stay in the military longer than do physicians who served residences at civilian hospitals. However, the reasons for this disparity are unclear. Nonetheless, retention is critical to readiness and cost efficiency. Physicians that remain in the military longer build on skills learned in GME training. The longer a physician remains on active duty, the more opportunity he or she has to practice these skills in the operational environment and thereby improve medical readiness. Likewise, higher retention rates lead to lower turnover and thus lower training and acquisition costs. Conversely, lower retention may lead to significant turbulence that could have significant impact on a smaller medical force.

Military readiness training, cost, and retention should be key factors in GME strategy and policy development. Yet, current GME doctrine either fails to mention cost and readiness or mentions them only in passing. Yet military

medical readiness and associated costs are fundamental to what military GME does, why it does it, and how much it should spend doing it.

This paper identifies readiness training needs and analyzes costs and retention as factors of GME strategy. It shows how these factors are driving change in GME strategy. It then addresses the second and third order effects of readiness, cost issues, and retention. In an Armed Force of declining resources, the DOD cannot afford strategies that do not support military medical readiness at the least cost.

KEY DEFINITIONS

It is important to understand the definition of medical readiness training and the key differences between in-house GME and GME conducted not inhouse.

DOD GME programs must meet the civilian GME requirements and as well develop the additional knowledge and skills to provide medical care in a hostile wartime environment.³ Medical readiness training refers to these additional skills, which generally fall into two categories: military unique medical skills and military subjects. Military unique medical skills include the ability to: treat multiple fragment wounds inflicted by artillery or mortar shell bombs, booby traps, and land mines; treat wounds cared for by many surgeons along an evacuation chain that extends from combat zone to home, rather than by one surgeon and his staff throughout all phases of wound repair; understand

tropical and preventive medicine; and treat nuclear, biological, and chemical warfare casualties.⁴ Some examples of military subjects that a military physician should know include: military organization, military operations, and medico-legal issues.⁵

Although this paper primarily addresses GME that DOD conducts itself (inhouse), physicians that train in civilian GME programs (not in-house) impact the MHSS after they enter active duty. Thus, we should distinguish among the different sources that DOD uses to acquire physicians, noting fundamental similarities and differences between the in-house and not in-house GME programs. (See Figure 1.)

Both DOD's GME programs and Civilian GME programs must meet the accreditation criteria of Residency Review Committees (RRCs). Each medical specialty taught by a GME program undergoes RCC review. RRCs' accreditation criteria aim to produce competent, fully trained specialists capable of meeting all civilian license and certification requirements.⁶ In many cases, RRCs require that specific GME programs accompany other GME programs.

The two programs enroll physician trainees differently. Civilian GME programs train physicians that are government sponsored and not government sponsored. The government sponsored physicians eventually join the military service. Health Professions Scholarship Program (HPSP) deferred students

provide the largest number of government sponsored students attending civilian GME. Under this program, HPSP provides medical students with tuition, a stipend, and other expenses related to medical school. These scholarship physicians defer active duty until completing their residency at a civilian GME program. They serve one year as a military physician for each year that they are in the HPSP. Two smaller groups of physicians also attend civilian GME prior to entering active military service: students receiving assistance under the Financial Assistance Program (FAP) and direct accessions. The FAP program pays a grant and a monthly stipend to students who attend a civilian residency. FAP participants incur a one-year for one-year obligation. Direct accessions are physicians who are not government sponsored but who later opt for military service. Direct accessions serve at least a three-year obligation.⁷ In contrast, the inputs for DOD GME programs are government sponsored students. These physicians are either HPSP physicians or graduates of DOD's medical school, the Uniformed Services University of the Health Sciences (USUHS). These physicians enter DOD GME programs directly after medical school.

The operating environment is also different in the in-house and not in-house GME programs. Physicians in civilian GME programs operate in the civilian environment and normally do not interact with the military environment.

Civilian GME programs enhance the profitability of hospitals in competing for

patients and Medicare subsidies. Some analysts suggest profitability accounts for the large growth in the number of physicians and increased health care costs. On the other hand, DOD GME students operate within the military health service system (MHSS) and become familiar with the nuances of military medicine and military culture. Also, DOD GME programs do not compete directly with other providers for patients, so they receive no subsidies for conducting GME programs. GME programs in DOD recruit physicians to meet specific manpower requirements. Medical readiness training also differs in the two programs. Civilian GME programs have no need to educate and train physicians in military unique skills. On the other hand, DOD GME programs have a responsibility to teach military readiness subjects. 9

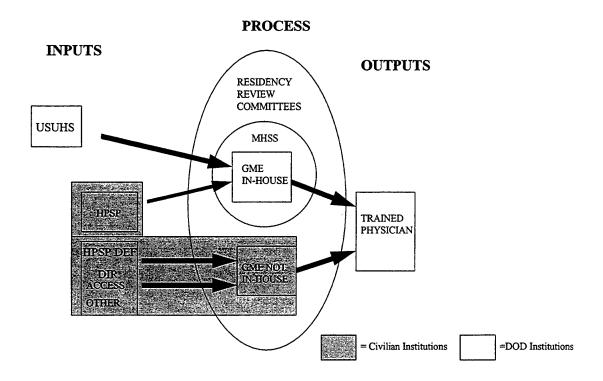


Figure 1 GME PROCESS

HISTORICAL BACKGROUND

A persistent problem in DOD GME programs has been inadequate medical readiness training guidance for GME programs. At the DOD level, the Strategic Plan For Rightsizing Graduate Medical Education In The Military Health Service System (March 1994) guides GME programs. This document does not mention medical readiness training. The omission clearly indicates that medical readiness training was not considered significant in relation to GME. Similarly, the Services did not provide medical training guidance that was helpful in determining specific medical readiness training as it related to GME programs. For example, the Army and Air Force issued general readiness training guidance, but it did not specify readiness course requirements for combat or mobilization assignments. As a result, the local commanders' initiative was the determining factor in medical readiness training. 11

Reliance on local commanders to identify requirements for medical readiness training and then to implement the requirements has produced GME training programs that vary considerably in military readiness curricula. Research indicates that medical readiness training varies from innovative too nonexistent. For example, the general surgery program at Tripler Army Medical Center covered over 20 readiness topics or training experiences such as burn management, combat abdominal injuries, retained unexploded ordnance in tissues, and surgery in the hostile environment. On the other

hand, the National Naval Medical Center and Keesler Medical Center offered no military readiness instruction.¹³

Although there is significant variation in the readiness training curricula in DOD GME programs, these programs have access to a tremendous untapped source of medical readiness training. USUHS graduates receive approximately 734 hours of readiness training while in medical school. This training includes both classroom and field exercises. Students also receive 50 hours more of training during the officer basic training that they take before beginning their first year of medical school. There is no objective evidence that shows USUHS students are any better prepared than their peers to meet the special needs of military medicine; nevertheless, their medical readiness training represents, if tapped at the local level, a considerable resource to improve medical readiness training.¹⁴

GME programs likewise offer no systematic instruction on costs and resources associated with military medial preparedness. The Strategic Plan For Rightsizing Graduate Medical Education In The Military Health Service System (March 1994) does not mention cost or dollar resources devoted to GME. So, it is not surprising that there is a paucity of studies on the cost of in-house GME. However, research indicates that there are are a substantial number of studies on civilian GME. Although the results of not-in-house studies vary, the most recent of them tend to suggest that the productivity of residents substituting

for more expensive physicians in providing patient care recovers the direct GME expenses. ¹⁵ Unfortunately, the difference in cost structure and economic incentives between DOD GME and civilian GME makes comparisons or applications of the civilian results to military GME tenuous.

Why are there so few studies on cost of in-house GME? Admittedly, it is difficult to assess GME costs. First, determining the cost of GME in a comprehensive manner is not a priority. Second, there is an overlap of costs shared in patient care, teaching, and research. Third, there are a large number of factors that are thought to play a significant role in affecting cost-perpatient, such as case-mix complexity; regional location; average wages paid to staff; location (urban or rural); utilization of test procedures; effect of teaching on productivity of physician faculty; higher use of supplies in teaching hospitals; and more aggressive care for severe cases. ¹⁶ Because there is great inconsistency in the methodologies used to capture these costs, DOD studies often falter before they begin. In analytical studies completed, analysts often disagree on interpretations of the same data sets.

Besides cost studies, there are several studies that indicate a relationship between retention and DOD GME programs (See table 1). There are many factors that could contribute to retention of physicians that may not relate to in-house GME. For example, longer pay back obligations for USUHS graduates is a key factor in their retention. USUHS graduates expect to serve for about

11 years after graduation, including GME training, before they are first able to leave military service; but HPSP students serve about 8 years, whereas deferred HPSP students serve about 4 years. This longer payback may encourage USUHS graduates to serve another 9 years until they are able to retire. Another factor that may influence USUHS retention is prior military obligation. Two 1994 studies identify military academy backgrounds, prior military experience, USUHS attendance, and fellowship training as predictive factors in the retention of physicians in certain specialties. In fact, these physicians may actually have a desire to pursue a military career. The bottom line on these studies is that they do not indicate why there is a relationship between retention and in-house versus not in-house GME.¹⁷

Additionally, studies have not explored the intuitive notions that lower retention rates may affect MHSS costs and decrease readiness. Higher retention rates lead to lower turnover, thus to lower training and acquisition costs. In a smaller DOD, these factors may cause significant organizational turbulence. There is evidence that high turnover does cause a decrease in the quality of care delivered. Additionally, research does not appear to address the role retention may play in readiness. Intuitively, it seems that the longer a physician stays in the military, the more opportunity there is to gain experience and thereby to increase readiness. The difference between retention rates for physicians that received GME in-house (USUHS and HPSP) and those that

trained at not in-house GME programs (Deferred HPSP and Direct accessions) is significant (See Table 1).

	USUHS	HPSP	Deferred	Direct
			HPSP	Accessions
General Surgeons	16.0471	12.2507	5.8112	8.2197
Surgical Specialists	16.0471	13.2244	5.8112	8.2197
Orthopedic Surgeons	16.0471	11.6534	5.8112	8.2197
Anesthesiologists	16.8038	13.5932	4.7606	8.1267
Primary Care Physicians	16.8038	9.4729	4.7606	8.1267
Medical Specialists	16.0471	15.6955	5.8112	8.2197
Ancillary Medical Physicians	16.8038	14.5388	4.7606	8.1267

Table 1: Physician Retention Rates¹⁹ (Years)

CURRENT STATUS OF READINESS, COST AND RETENTION ISSUES

The current status of readiness, costs, and retention in DOD GME programs offers justification for cautious encouragement. For example, since the GME Strategic Plan for Rightsizing was published, two later documents indicate that DOD is more aware of the significance of medical readiness training. The first document is the Department Of Defense Medical Readiness Strategic Plan 1995-2001. This plan recognizes that the medical departments of the Services must prepare to respond effectively and rapidly to the entire spectrum of potential military operations. While it does not provide any specific guidance

on military readiness training, it does recognize that physicians must be proficient in the art of military medicine. Specifics are lacking, but the intent is to move toward readiness. Another document that indicates a shift toward more emphasis on medical readiness is the MHSS Strategic Plan, which promises to provide the operational forces with a well-trained medical force. To accomplish this, the plan proposes to realign resources that support the prioritized requirements of the operational forces. Finally, it predicts that the medical establishment will maintain skills on the cutting edge to support the readiness mission. This document clearly set the tone that readiness is the primary mission of the MHSS.

A final document is the Strategic Thinking Assumptions Health Affairs and the MHSS in 1998. This document stipulates the most specific commitment to medical readiness training. It urges that GME must reflect wartime and day to day operational support requirements. Although there are no specific medical readiness training requirements identified, the strategic direction is clear. Military medicine will meet the unique readiness requirements of military medicine through an efficient and integrated medical infrastructure.

These documents are being seriously considered in order to pave the way for integrating readiness training into DOD GME programs. The ASD(HA) directed a DOD Flag Officer Executive Committee on Graduate Medical Education to determine how much military unique content is in their GME

programs and how best to evaluate the effectiveness of that content.²¹ This group will determine the relationship of military unique factors in GME to readiness. Additionally, they will develop common criteria and assessments for military unique curricula.²² This group is currently meeting to develop readiness training standards for GME programs.

In view of past experience, critics of the DOD medical establishment may be reluctant to believe that the ASD(HA) will implement the committee's recommendations. In Fiscal Year 1987, the Office of the Assistant Secretary of Defense(HA) directed that the Uniformed Services University of the Health Sciences develop a curriculum for the DOD GME programs that included aspects of practice unique to the military. The manual was produced and distributed to GME program directors in FY88. Yet, in 1996 the manual served as the basis to develop readiness curricula in only 31 of 165 GME programs. Lack of oversight may account for the sporadic use of the manual.²³

In answer to the critics who believe GME program directors will not implement military readiness training, an innovation sprouting in GME programs may bear fruit. For example, a lesson learned from Operation Desert Shield and Desert Storm was that many physicians were unfamiliar with the operation of the unit's medical equipment. Physicians receive this training offsite. In other words, they train on the equipment unique to field medical units at a location away from the medical center or teaching hospital (off-site). While

it is true some directors of DOD GME programs are reluctant to incorporate this off-site readiness training into their programs because they believe that RRCs will not accredit the programs that engage in off-site medical readiness training, other GME program directors have turned this noted deficiency into an opportunity. DOD GME programs in hospitals such as Tripler Army Medical Center and the Naval Medical Center San Diego aggressively pursued off-site programs and received accreditation from the RRCs²⁴.

Skeptics also ask whether innovations in DOD GME programs are being spread to other programs. Apparently, not in all cases. For example, the anesthesia program at Naval Medical Center San Diego produced a textbook, Operational Anesthesia (1994-1995). This material in this text was testable as part of the curriculum. The text book was readiness-oriented. Its incorporation into the curricula of other DOD anesthesia residency programs could have increased the readiness content of those programs. Unfortunately, GME programs outside the Naval Medical Center San Diego anesthesia residency program did not use the text.²⁵

There continues to be a lack of comprehensive methodologies to determine the cost of GME programs.²⁶ Lack of mutually agreed upon comprehensive methodologies causes many inconsistencies in the types of costs attributed to GME. Thus accurate cost data is not available for analysis. The current GME strategy directs that the ratio of GME trainees (trained in DOD medical

facilities) to active duty physicians not exceed the FY94 ratio. ²⁷ This directive may be inappropriate. To the degree that less expensive trainees can substitute for more expensive physicians or more expensive care in the civilian sector, a higher ratio may be more cost effective. However, without mutually accepted cost methodologies, we will not know and cannot determine the costs of GME in order to find the right size of DOD's GME programs.

Another current directive that may increase costs to the MHSS is a mandate that the Services use the HPSP deferred program to the greatest extent possible to acquire physicians.²⁸ Recent studies predict that in the near future, perhaps by the year 2000, the United States will face a shortage of 35,000 generalist physicians and an excess of 115,000 specialist physicians.²⁹ A study by the Pew Commission recommended that medical schools be reduced by 20% in the next decade.³⁰ Thus the military will compete with all other primary care providers for a shrinking pool of practitioners. These extreme shortfalls could lead to increased salary costs or acquisition costs and make recruitment and retention difficult

Additionally, physician's accessed through the HPSP deferred programs have lower retention rates than physicians acquired thorough USUHS or HPSP.

Lower retention rates mean higher turnover, which means higher training and acquisition costs. The loss of experienced physicians due to turnover means the loss of experienced, higher quality care givers. Finally, the loss of

experienced physicians means that they are not available to serve in positions that require experience.

CONCLUSION

The Armed Forces deploy more now than ever before. These frequent deployments increase the demand for physicians that are proficient in military medical readiness. Military medical readiness training is important if physicians are to function as integral parts of combat and medical units.

Operational forces need physicians who can conserve the fighting strength of airmen, marines, sailors, and soldiers.

Guidance for military medical readiness in GME programs is weak, but it is improving. The most current OSD(HA) documents indicate that medical readiness training is now a priority. The recent initiative by the ASD(HA) to direct the Flag Officer Executive Committee on GME to develop common criteria and assessment for military unique curricula is exciting. This initiative provides the opportunity to identify, codify, and institutionalize military unique curricula. Military medical readiness training will become part of what DOD GME is all about when this initiative materializes.

Accompanying the enthusiasm of the changing emphasis on medical readiness is the innovation currently underway in some GME programs. Some local commanders, working with GME Program Directors, are incorporating military medical readiness training in their programs. The potential to expand

these innovations is there but the emphasis is missing. These innovations could well serve as a starting point for the Flag Officer Executive Committee on GME.

The lack of costing methodologies for GME is an continuing problem with significant consequences if it persists. To efficiently use resources, DOD must accurately size its GME programs. Common methodologies to determine the cost of health care are essential to the sizing effort. Medical facility commanders are responsible for providing health care in the most cost effective manner. Without costing methodologies, this task may be impossible to accomplish.

Research indicates a relationship between in-house GME and retention, but the studies do not reveal the reasons. Intuition indicates that increased retention of physicians may lead to increased readiness and decreased cost to the MHSS. Unfortunately, studies that explore retention do not address these issues. Without taking into account the impact of physician retention on readiness and costs, strategic policy decisions on how to size military GME programs may be less than sound.

RECOMMENDATIONS

Creating appropriate future GME strategy and policy will be a difficult task.

Planners must look beyond the pressing problems of today out into the future;

they must balance peacetime efficiency with wartime effectiveness. The strategy they devise should provide the conceptual mosaic that establishes where key issues fit into the larger MHSS scheme. This strategy then would justify the sequences of policy initiatives and allocation of resources.

To ensure that the product of the GME process is able to meet the increasing deployment needs of the Armed Forces in a cost effective way, GME planners should consider the following recommendations:

- Establish medical readiness training skills and standards for each specialty and each service. Perhaps all military physicians should demonstrate a basic level of military medical skills. In addition, particular military medical skills may apply to specific specialists, as well as to specific services. Such standards would ensure that physicians can deliver the health required across the spectrum of warfare.
- Establish a timeline for GME program directors to coordinate with RRCs for incorporation of military unique curricula into their programs. The timeline should ensure that incorporation of military-unique curricula into GME programs is on track. A timeline should also enable RRCs to identify shortfalls in a timely matter so that senior leadership could influence the outcome.
- Institutionalize a forum for capturing and promulgating innovative methods to incorporate military-unique medical readiness training into GME programs. Many good ideas are dug into the GME trenches; these ideas may well inspire

other good ideas. A forum to exchange these ideas would keep military medical readiness training fresh and exciting.

- Establish a monitoring mechanism to ensure GME medical readiness training stays alive in GME programs. This would ensure consistency by providing oversight.
- Establish a training methodology to ensure physicians trained in civilian GME programs acquire the required military medical skills needed for combat. Without this parallel effort, a significant dichotomy would develop between physicians that attend GME in-house and those that attend GME not in-house. The difference between a military physician and a physician-in-the-military would be divisive in the medical corps.
- Develop cost methodologies for GME. These may be service-specific rather than a single DOD methodology. Without standard costing methodologies, there is no way to determine whether to keep a specific GME program in-house or acquire these physicians externally.
- After setting readiness training standards, determine the cost to bring physicians that attend GME not in-house up to military training readiness standards. This comparison may show that costs of training physicians that trained at not-in-house GME programs is significant.
- Continue to study retention. Determine why there is a difference in retention for physicians that attend GME in-house versus not in-house? This

finding could prove useful in addressing policy issues related to physician bonuses and in determining obligations leived upon to scholarship students.

To efficiently meet future medical readiness needs of the Armed Forces DOD GME planners should consider medical readiness training, cost, and retention as key factors in DOD's GME strategy. GME produces the trained physicians of the future. Only by establishing medical readiness standards and integrating them into GME programs can DOD appropriately influence the future characteristics of the physician force. As a steward of public resources, DOD GME planners must develop comprehensive cost methodologies for GME. These methodologies should allow leaders to determine if physicians are being recruited, trained, and retained on a cost effective basis. Finally, the role of retention in increased readiness and decreased cost should receive more study. The longer a physician remains on active duty the more opportunity he or she has to practice medical readiness training skills in the operational environment thereby improving medical readiness. Likewise, higher retention leads to lower turnover and thus lowers turbulence, and training and acquisition costs. Future success for DOD's GME programs depends, to a great extent, on the ability of these programs to support the Armed Forces with physicians that have appropriate medical readiness skills acquired at the least cost.

ENDNOTES

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 - ² Ibid., 6.
- ³ Department of Defense, Office Of The Inspector General, <u>DOD Graduate</u> <u>Medical Education Programs And Medical Readiness Training</u>, Report No. 96-168, 18 June, 1996,p. 2.
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- ⁶ Department of Defense, Office Of The Inspector General, <u>DOD Graduate</u> <u>Medical Education Programs And Medical Readiness Training</u>, Report No. 96-168, 18 June, 1996,p. 2.
- ⁷ Neil B. Carey and Marjorie D. Curia and Oliver A. Smith, Setting Priorities for Graduate Medical Education (Alexandria, VA.: Center for Naval Analyses, 1996), 12,CRM 95-209.
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- ¹⁰ Office of the Assistant Secretary of Defense Health Affairs, <u>Strategic Plan For Rightsizing Graduate Medical Education In The Military Health Service System</u>, (Washington, D.C. 1994),p. 1-9-1.

ENDNOTES (Continued)

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 - ¹⁹ Ibid., B-6-12.
- ²⁰ Office Of The Assistant Secretary Of Defense Health Affairs, <u>Medical Readiness</u>, <u>Medical Readiness Strategic Plan 1995-2001</u>, (Washington, D.C., 195),p. 1.
 - ²¹ Joint Services GME Dining Out, 4 December 1996, Washington, D.C.
- ²² "Breaking News Items," linked from Office Assistant Secretary Of Defense Health Affairs at "Home Page" http://www.ha.osd.mil/bknews/bknw0120.html, 28 January 1997.

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- ²⁴ Department of Defense, Office Of The Inspector General, <u>DOD Graduate</u> <u>Medical Education Programs And Medical Readiness Training</u>, Report No. 96-168, 18 June, 1996,p. 13.
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- ²⁶ Department of Defense, Office Of The Inspector General, <u>DOD Graduate</u> <u>Medical Education Programs And Medical Readiness Training</u>, Report No. 96-168, 18 June, 1996,p.36.
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